

CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method of eye tracking, comprising, in sequence, the steps of:

(a) viewing an entire face of a person to obtain predetermined facial features of said person to identify or not said person;

(b) if said person is identified, retrieving a previously stored ocular profile of said person based on said predetermined facial features;

(c) using said ocular profile to track movement of an eye of said person.

2. A method of eye tracking, as defined in Claim 1, wherein: said steps are performed automatically

3. A method of eye tracking, as defined in Claim 1, wherein said step of using said ocular profile views said entire face of said person.

4. A method of eye tracking, as defined in Claim 1, wherein: if said person is not recognized, such information is used to restrict how a vehicle is to be operated and/or to restrict access to certain areas of a vehicle

5. A method of eye tracking, as defined in Claim 1, wherein: following step (a), if said person is not recognized, viewing only an eye of said person to create an ocular profile of said eye and using said ocular profile in step (c).

6. A method of eye tracking, as defined in Claim 1, wherein: steps (a) and (c) are performed using SXGA resolution in a eye tracking system.

7. A method of eye tracking, as defined in Claim 5, wherein said step of creating an ocular profile uses SXGA resolution in an eye tracking system.

8 A method of eye tracking, as defined in Claim 1, wherein: said step of using said ocular profile includes illuminating said eye with infrared radiation and using reflection of said infrared radiation for eye tracking.

5 9. A method of eye tracking, as defined in Claim 1, wherein: if eye contact is lost, viewing said entire face of said person to determine the location of said eye.

10. An apparatus for eye tracking, comprising:

10 (a) an optical receiver to view an entire face of a person to obtain predetermined facial features and to produce a signal representative of said facial features;

(b) infrared illumination to cause a reflection from an eye of said person; and

(c) a controller to receive said signal and, if said person is recognized from said facial features, to retrieve a stored ocular profile of said reflection and to use said ocular profile for eye tracking while viewing said entire face of said person.

15 11. An apparatus for eye tracking, as defined in Claim 10, wherein: if said person is not recognized, said controller causes said optical receiver to view only said eye of said person and uses such information to create an ocular profile therefor for use in eye tracking.

20 12. An apparatus for eye tracking, as defined in Claim 10, wherein: all elements of said apparatus operate automatically.

25 13. An apparatus for eye tracking, as defined in Claim 10, wherein: all elements of said apparatus operate without mechanical linkages.

14. An apparatus for eye tracking, as defined in Claim 10, wherein: said apparatus uses SXGA resolution.

30 15. An apparatus for eye tracking, as defined in Claim 10, wherein: if said person is not recognized, said controller restricts how a vehicle can be operated and/or restricts access

to certain areas of said vehicle.

16. An apparatus for eye tracking, as defined in Claim 10, wherein: if contact with said eye is lost, said controller uses said entire face of said person to locate said eye.

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